

What is claimed is:

1. A method of preparing a protein array based on biochemical protein-protein interaction, comprising the steps of:

5 (a) depositing on a substrate an array of a first protein, the first protein comprising a PDZ domain; and

10 (b) applying a second protein, which comprises an amino acid sequence (S/T)-X-(V/I/L)-COOH, to the first protein array, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein binding to the PDZ domain of the first protein,

15 wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

20 2. The method of claim 1, wherein the amino acid sequence (S/T)-X-(V/I/L) is fused to the C-terminal of the second protein.

25 3. The method of claim 1, wherein the protein array is maintained under physiological condition, and is used to screen one or more drug targets.

4. The method of claim 1, wherein the first protein deposited in step (a) is in a soluble buffer.

30 5. The method of claim 1, wherein the first protein deposited in step (a) is immobilized in a gel.

35 6. The method of claim 1, wherein the substrate includes a plurality of microwells contained therein, and the first protein is deposited in step (a) into the

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microwells.

7. The method of claim 1, wherein the substrate includes a glass plate, and the first protein array is printed onto the glass plate in step (a).

8. The method of claim 1, wherein the substrate includes a glass plate and a plurality of gel pads on the glass plate, and the first protein is deposited in step (a) onto the gel pads.

9. The method of claim 1, wherein the first protein is deposited on the substrate by a robot.

10. The method of claim 1, wherein at least one element of the protein array includes an oligonucleotide.

11. The method of claim 1, wherein at least one element of the protein array includes messenger RNA.

12. The method of claim 1, wherein at least one element of the protein array includes DNA.

13. The method of claim 1, wherein at least one a sugar.

14. A method of preparing a protein array, comprising the steps of:

(a) depositing on a substrate an array of first proteins, each first protein comprising a corresponding PDZ domain; and

(b) applying a second protein, which comprises an amino acid sequence (S/T)-X-(V/I/L)-COOH, to the array of first proteins, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein, for each of the first proteins,

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binding to the PDZ domain of the first protein,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

15. A method of preparing a protein array, comprising the steps of:

(a) depositing on a substrate an array of a first protein, the first protein comprising a PDZ domain; and

(b) applying a plurality of second proteins, each of which comprises a corresponding amino acid sequence (S/T)-X-(V/I/L)-COOH, to corresponding elements of the first protein array, for each of the second proteins, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein binding to the PDZ domain of the first protein in the corresponding array element,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

16. A method of preparing a protein array, comprising the steps of:

(a) depositing on a substrate an array of a first polypeptide, the first polypeptide comprising a PDZ domain; and

(b) applying a second polypeptide which comprises an amino acid sequence (S/T)-X-(V/I/L)-COOH to the first polypeptide array, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second polypeptide binding to the PDZ domain of

[illegible]

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18. The method of claim 16, wherein at least one element of the protein array includes messenger RNA.

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20. The method of claim 16, wherein at least one element of the protein array includes a sugar.